

NEW AMERICAN BARK BEETLES (COLEOPTERA: SCOLYTIDAE), WITH TWO RECENTLY INTRODUCED SPECIES

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ABSTRACT.— Species named as new to science include: *Conophthorus michoacanae*, *C. tocotum*, *Hylesinus aztecus* (Mexico), *Phloeocleptus punctatus* (Costa Rica), *Pseudothysanoes atonus* (Venezuela), *P. lecchi* (California), *Pityogenes mexicanus*, *Araptus speciosus*, *Amphicranus spectus* (Mexico), and *Xyleborus praestans* (Panama). Also reported are the first records of the notorious *Xylosandrus compactus* (Eichhoff) from South America (Brazil), and the first American records of *Xyleborus fornicatus* Eichhoff (Panama) and *X. validus* Eichhoff (New York and Pennsylvania).

As indicated in the above abstract, the following pages report the first American records of two species of *Xyleborus*, the extension of the range of *Xylosandrus compactus* (Eichhoff) into South America, and the description of 10 species of American Scolytidae new to science. The species new to science represent the genera *Conophthorus* (2), *Hylesinus* (1), *Phloeocleptus* (1), *Pseudothysanoes* (2), *Pityogenes* (1), *Xyleborus* (1), *Araptus* (1), and *Amphicranus* (1), and were taken in California (1), Mexico (6), Costa Rica (1), Panama (1), and Venezuela (1).

NEW INTRODUCTIONS

Xyleborus fornicatus Eichhoff

Xyleborus fornicatus Eichhoff, 1865, Berliner Ent. Zeitschr. 12:151 (Syntypes: Ceylon; not located).

This species has caused extensive economic damage in southern Asia, Sri Lanka, Indonesia, Micronesia, Africa, and Hawaii for a half century or more in a very large number of host species.

A living specimen of this species was taken in July 1979 from a small branch of a tree in the Canal Zone, Panama. This constitutes the first record of this species in any American country. Since it is moderately aggressive, it is expected to be of some economic importance in the tropical and subtropical areas into which it spreads.

Xyleborus validus Eichhoff

Xyleborus validus Eichhoff, 1875, Ann. Soc. Ent. Belgique 18:202 (Syntypes, female: Japan; apparently at Brussels Mus.)

A breeding population of this Japanese species was first found on Long Island near New York City (Nassau Co.) in 1976. Several additional collections were taken at Du Pont's Farm near Newtown Square, Delaware Co., Pennsylvania, on 2-VII-1980, from *Quercus velutina*, by George Stevens.

This species breeds in the stumps and logs or in the boles of a broad spectrum of trees. Host genera in Japan include: *Abies*, *Acanthopanax*, *Acer*, *Betula*, *Carpinus*, *Castanea*, *Clethra*, *Cryptomeria*, *Fagus*, *Juglans*, *Malotus*, *Phellodendron*, *Pinus*, *Prunus*, *Quercus*, and *Zelkova*. It is apparently more aggressive than native ambrosia beetles and should be of economic concern.

Xylosandrus compactus (Eichhoff)

Xyleborus compactus Eichhoff, 1875, Ann. Ent. Soc. Belgique 18:201 (Syntypes, female: Japan; one syntype in Schedl Coll. at Vienna)

This destructive species apparently originated in southern Asia and spread to Africa, Micronesia, and adjacent areas more than a half century ago. More recently it reached Hawaii, Cuba, Florida, Georgia, and Louisiana.

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On 7 December 1979 numerous collections of this species were made in the vicinity of Manaus, Amazonas, Brazil, from a variety of hosts. This is the first documented record of this species in South America. Its occurrence at this remote locality in virgin forest suggests that it is widespread in South America and that it has been there for quite some time. Those concerned with plant protection should be advised of the range expansion of this notorious pest species.

NEW TAXA

Conophthorus michoacanae, n. sp.

This species is distinguished from *apachecae* Hopkins by the more slender body, by the less densely punctured, smoother basal half of the elytral disc, by the broader, more gradual elytral declivity, and by other characters cited below.

MALE.—Length 3.9 mm (paratypes 3.0–4.2 mm), 2.4 times as long as wide; color very dark reddish brown.

Frons as in *apachecae* except never with a median crest or tubercle, a weak, transverse impression usually present on upper half of median half of area below upper level of eyes.

Pronotum essentially as in *apachecae* except slightly more slender.

Elytra resembling *apachecae* except 1.48 times as long as wide; discal striae with punctures not as close, mostly in rows, interstriae sparsely punctured, punctures only slightly confused on basal fifth, surface smooth, not wrinkled; declivity not as steep, less strongly arched, sulcus deeper and much wider, tubercles on interstriae 3 very small (less strongly arched and more broadly sulcate than in *ponderosae*); vestiture less abundant, slightly coarser.

FEMALE.—Similar to male in all respects.

TYPE LOCALITY.—Uruapan, Michoacán, Mexico.

TYPE MATERIAL.—The male holotype, female allotype, and 24 paratypes were taken at the type locality in February 1980, from *Pinus michoacana* cones by Adolfo A. del Río Mora.

The holotype, allotype, and paratypes are in my collection.

Conophthorus teocotum, n. sp.

This species is distinguished from *ponderosae* Hopkins by the subacutely elevated median carina on the lower half of the frons in both sexes, by the totally obsolete punctures on declivital striae 2 except near base, and by other characters cited below.

MALE.—Length 3.4 mm (paratypes 3.1–3.7 mm), 2.3 times as long as wide; color very dark brown.

Front weakly, transversely impressed as in *ponderosae*; median line on more than lower half with a conspicuous, subacutely elevated carina, end of carina somewhat tuberculate at epistomal margin.

Pronotum as in *ponderosae* except asperities averaging smaller, serrations on anterior margin usually reduced, impressed points rather numerous and sharply, distinctly impressed.

Elytra as in *ponderosae* except punctures on declivital striae 2 obsolete except on less than basal fourth, declivity more broadly, slightly less strongly impressed, tubercles on declivital interstriae 3 slightly larger.

FEMALE.—Similar to male except transverse frontal impression more extensive, slightly more conspicuous, carina slightly shorter.

TYPE LOCALITY.—Uruapan Michoacán, Mexico.

TYPE MATERIAL.—The male holotype, female allotype, and two female paratypes were taken at the type locality in March 1980, from *Pinus teocote* cones, by Adolfo A. del Río Mora.

The holotype, allotype, and two paratypes are in my collection.

Hylesinus aztecus, n. sp.

This species is distinguished from *californicus* (Swaine) by the larger size, by the presence of a fine, low, median, frontal carina in both sexes, by the less strongly concave male frons and less strongly convex female frons, and by differences in the declivital interstitial setae described below.

MALE.—Length 3.8 mm (paratypes 3.8–4.2 mm), 1.8 times as long as wide; vestiture of dark brown and tan scales in a pattern similar to *californicus*.

Frons similar to *californicus* except very shallowly concave from epistoma to upper level of eyes, a low, median carina on lower half, and granules on upper and lateral areas of head conspicuously larger.

Pronotum similar to *californicus* except asperities smaller, punctures smaller, less definite, and scales averaging much more slender.

Elytra similar to *californicus* except interstitial crenulations more numerous, smaller, confused (a median row not predominating); declivital interstriae 1 less strongly elevated, 2 wider; ground setae on declivital interstriae 2 in two indefinite ranks (never uniseriate); erect setae always absent on 2, present on 1 and 3, each four to eight times as long as wide, spaced within a row by distances greater (one to four times) than length of a seta.

FEMALE.— Similar to male except frons less strongly, more broadly impressed (irregularly flattened); declivital interstriae 1 less strongly elevated (vestiture not clearly sexually dimorphic).

TYPE LOCALITY.— Chapingo, Mexico, Mexico.

TYPE MATERIAL.— The male holotype and seven paratypes were taken at the type locality on 12-XII-1979, from *Fraxinus uhdei*, by T. H. Atkinson. The female allotype and five paratypes bear similar data except they were taken on 17-VIII-1979.

The holotype, allotype, and paratypes are in my collection.

Phloeocleptus punctatus, n. sp.

This species is distinguished from *tresmariae* (Schedl) by the slightly smaller size, by the fringe of long setae at the upper margin of the female frontal concavity, by the coarser striae punctures, and by other characters cited below.

MALE.— Length 1.6–1.7 mm (females both 1.8 mm), 2.4 (female 2.6) times as long as wide; color very dark brown.

Frons convex, a slight transverse impression just above epistoma; surface rugose-reticulate on lower half, more irregularly rugose above, punctures moderately coarse, rather close. Antennal scape slender, elongate, ornamented by less than a dozen long setae.

Pronotum about as in *tresmariae* except anterior margin finely serrate and sparse vestiture on posterior half of mixture of fine, slender hair and stout scales.

Elytral outline about as in *tresmariae*; striae distinctly impressed on posterior third of disc, punctures at base rather small, gradually increasing to twice as large and very deep at base of declivity; interstriae slightly wider than striae at base, narrower than striae at base of declivity, punctures uniseriate, fine at base, becoming replaced by rounded granules near base of declivity. Declivity broadly, strongly convex, steep; striae punctures decrease in size from base, moderately coarse at apex; interstriae as wide as striae on lower half, all uniseriately granulate to apex. Vestiture of erect, uniseriate, interstitial scales, each three to four times as long as wide, almost as long as distance between rows, spaced within a row by about two-thirds length of a scale.

FEMALE.— Similar to male except more slender; frons moderately concave almost from eye to eye from epistoma to vertex; its surface minutely irregular, punctures fine, obscure, its upper margin ornamented by a dense fringe of long hair, these setae equal in length to about one-third diameter of concave area; scape with a larger tuft of long setae; anterior margin of pronotum unarmed; elytral punctures and granules distinctly smaller, interstitial scales each four to five times as long as wide.

TYPE LOCALITY.— Santa Rosa National Park, Guanacaste Province, Costa Rica.

TYPE MATERIAL.— The female holotype, male allotype, and three paratypes were taken at the type locality between 15 December 1979 and 6 January 1980, from the phloem of an unidentified tree, by George Stevens.

The holotype, allotype, and paratypes are in my collection.

Pseudothyanoes atomus, n. sp.

This species is distinguished from *columbianus* (Blackman) and other representatives of the genus by the very small size and by the apparent replacement of most striae punctures by granules.

MALE.— Length 0.8 mm (paratypes 0.7–0.8 mm), 2.3 times as long as wide; color yellowish brown.

Frons convex; surface shining and almost smooth in central area, becoming reticulate toward margins, punctures fine, sparse, some replaced by fine granules; vestiture sparse, inconspicuous. Antennal scape elongate, ornamented by several hairs; club without sutures, small, rather slender.

Pronotum as long as wide; outline typical of genus; anterior margin armed by four coarse, closely set denticles; posterior areas shining, subreticulate in some areas, sparse punctures obscure, replaced by fine granules behind summit. Vestiture of inconspicuous fine hair.

Elytra 1.4 times as long as wide, 1.5 times as long as pronotum; striae not impressed, punctures fine, distinct, those on posterior two-thirds with a tubercle between punctures; interstriae as wide as striae, shining, surface irregular, indistinct, fine punctures replaced by coarse tubercles before declivity. Declivity steep, convex; strial punctures scarcely evident, all striae and interstriae with rows of rather large, rounded tubercles. Vestiture mostly confined to declivity, of erect rows of slender strial and stout interstitial setae, all of uniformly rather short length, setae on interstriae 2 apparently absent except at base of declivity.

FEMALE.— Similar to male except slightly more slender; anterior margin of pronotum unarmed; strial and interstitial tubercles much smaller (but present); all declivital setae slender.

TYPE LOCALITY.— Finca Monasterios, Cagua, Miranda, Venezuela.

TYPE MATERIAL.— The male holotype, female allotype, and 11 paratypes were taken at the type locality in 1971, from *Theobroma cacao* branches.

The holotype, allotype, and paratypes are in my collection.

Pseudothysanoes leechi, n. sp.

This species is distinguished from *phoradendri* Blackman of the southwestern USA by the larger size, by the much shorter, stouter male declivital scales, and by the much longer setae on the female vertex. It is much

more closely related to the Mexican *verdicus* Wood but is distinguished by the stouter scales on the male declivity, by the much less strongly impressed female frons, with the setae on the vertex distinctly shorter and less abundant, and by other characters cited below.

MALE.— Length 1.6 mm (paratypes, males 1.4–1.7 mm, females 1.6–1.8 mm), 2.4 (female 2.5) times as long as wide; color very dark brown, vestiture pale.

Frons as in *verdicus* except median third on lower half of frons more distinctly, concavely impressed.

Elytra 1.45 times as long as wide, 1.7 times as long as pronotum; as in *verdicus* except strial punctures on disc slightly larger, interstitial granules distinctly larger, extending to base, interstitial scales closer, shorter, those on declivity about twice as long as wide, each half to two-thirds as long as distance between rows.

FEMALE.— Similar to female *verdicus* except frons shallowly concave on median two-thirds of lower two-thirds, setae on vertex shorter, less abundant, tips of longest attaining middle of frons; posterior areas of pronotum without reticulation; strial punctures slightly deeper, interstitial punctures and scales closer, scales distinctly shorter. A very small tuft of hair on scape.

TYPE LOCALITY.— North side of Howell Mountain, 3 km NNE Angwin, Napa Co., California.

TYPE MATERIAL.— The male holotype, female allotype, and 19 paratypes were taken at the type locality (reared) on 27-VIII-1980, from *Phoradendron flavescens* var. *villosum* (taken from *Quercus kelloggii*), by H. B. Leech. Other paratypes emerged or were cut from the same sample on the following 1980 dates: (3) 18-VI, (2) 21-VII, (4) 25-VII, (1) 6-VIII, (1) 13-VIII, (1) 10-VIII.

The holotype, allotype, and part of the paratypes are in the California Academy of Sciences; the remaining paratypes are in my collection.

Pityogenes mexicanus, n. sp.

This species is distinguished from *meridianus* Blackman by the much larger size, by the shorter, more strongly hooked upper

spines on the male elytral declivity, by the more regularly punctured discal interstriae, and by the much more strongly convex female elytral declivity. The female frons of this species and *meridianus* differs from all other American *Pityogenes* in lacking a deeply excavated central area.

MALE.—Length 3.2 mm (paratypes 3.2–3.4 mm), 2.6 times as long as wide; color very dark brown.

Frons broadly granulate, a few fine punctures interspersed; vestiture of fine, long, moderately abundant hair.

Pronotum essentially as in *meridianus* except minute, impressed points much more numerous.

Elytra essentially as in *meridianus* except interstitial punctures regular, about equal in size to those of striae; upper declivital spines slightly shorter, more strongly hooked, series of tubercles on lower fourth of lateral margin much lower and rounded except lowest one larger and pointed (male *meridianus* not at hand; comparison based on Blackman's drawing).

FEMALE.—Similar to male except median line on upper half of frons shallowly concave; epistomal area on median third slightly protuberant, granulate, and ornamented by moderately abundant, fine, short hair; frontal tubercles smaller; declivity shallowly, narrowly sulcate (more shallowly impressed than any other American *Pityogenes*), declivity with stouter, more abundant vestiture than in *meridianus*.

TYPE LOCALITY.—Parque Nacional Zoquiapan, Mexico, Mexico.

TYPE MATERIAL.—The female holotype, male allotype, and six paratypes were taken at the type locality in August 1979, from a *Pinus hartwegii* branch (shaded out?), by T. H. Atkinson.

The holotype, allotype, and paratypes are in my collection.

Araptus speciosus, n. sp.

A specimen of this species in the U.S. National Museum, which had been incorrectly identified as *Neodryocoetes exquisitus* Blackman, led me to apply Blackman's name incorrectly. His *exquisitus* (= *P. inceptis* Wood) must be referred to *Pityophthorus* and the

very similar, misidentified specimens, here named *speciosus*, to *Araptus*. In all probability, both species should be in *Araptus*, although the paucity of material for study makes resolution of the problem difficult.

This species is distinguished from *exquisitus* by the more broadly flattened female frons, with longer, more broadly distributed frontal vestiture; by the less distinctly reticulate, more finely punctured pronotum; and by the slightly shorter elytral vestiture.

FEMALE.—Length 1.7 mm (paratypes 1.4–1.7 mm), 2.7 times as long as wide; color dark reddish brown.

Frons broadly flattened from epistoma to vertex, shining, finely, closely punctured, sparsely pubescent at center, densely ornamented by long yellow hair at sides and above, longest setae on vertex extend two-thirds distance to epistoma.

Pronotum 1.1 times as long as wide; widest slightly behind middle; sides on posterior half weakly arcuate, feebly constricted on anterior half, then rather narrowly rounded in front; anterior margin armed by four to ten serrations; summit poorly developed, slightly in front of middle; asperities on anterior slope moderately large, arranged into discontinuous, irregular, subconcentric rows, posterior areas mostly smooth, shining, some specimens with very obscure indications of reticulation, punctures moderately coarse, deep, rather close. Glabrous.

Elytra 1.7 times as long as wide, 1.5 times as long as pronotum; sides straight and parallel on basal two thirds, rather broadly rounded behind; striae not impressed, punctures rather small, moderately deep; interstriae about twice as wide as striae, almost smooth, shining, impunctate, impressed points not clearly visible. Declivity steep, rather broadly convex; sutural interstriae feebly elevated; striae punctures smaller than on disc, a few very small interstitial punctures also present. Vestiture confined to declivity, consisting of a few interstitial bristles, each almost as long as distance between rows.

TYPE LOCALITY.—Five miles or 8 km south of La Huerta, Jalisco, Mexico.

TYPE MATERIAL.—The female holotype and eight female paratypes were taken at the type locality on I-VII-1965, No. 168, from a *Ficus* twig, by me.

The holotype and paratypes are in my collection.

Amphicranus spectus, n. sp.

This species is distinguished from *spectabilis* Wood by the larger size, by the more elongate antennal club, with more strongly arcuate sutures, by the more shallowly impressed elytral punctures, and by the more strongly, more acutely elevated lateral margin of the elytral declivity from base to apex.

MALE.—Length 2.9 mm, 3.2 times as long as wide; color reddish brown (fully mature?).

Frons about as in *spectabilis* except surface more finely punctured, raised median granular area slightly larger (occupying almost meridian third), much more sharply defined. Antennal club more slender, 1.5 times as long as wide, sutures more strongly arcuate than in *spectabilis*.

Pronotum 1.6 times as long as wide; about as in *spectabilis* except punctures on posterior areas slightly smaller.

Elytra 1.8 times as long as wide, 1.13 times as long as pronotum; similar to *spectabilis* except punctures on disc very shallow, obscurely impressed, declivity more deeply excavated, lateral margin more acutely, more strongly elevated, more strongly explanate below, basal area of spine 1 protruding slightly.

TYPE LOCALITY.—Pichucalco, Chiapas, Mexico.

TYPE MATERIAL.—The male holotype was taken at the type locality on 26-III-1980, from *Theobroma cacao*.

The holotype is in my collection.

Xyleborus praestans, n. sp.

This species is distinguished from *meritus* Wood by the larger size, by the different declivity, and by other characters cited below.

FEMALE.—Length 3.9 mm, 2.9 times as long as wide; color dark brown.

Frons and pronotum as in *meritus* except pronotal summit more subacutely elevated.

Elytra about as in *meritus* except declivity slightly steeper, more nearly convex, more broadly rounded behind; interstitial punctures on disc more nearly obsolete, irregular interstitial lines on disc more conspicuous; striae punctures on declivity more distinct, not larger than those on disc, interstitial tubercles on 1 and 2 not as close, very slightly larger.

TYPE LOCALITY.—Cerro Punta, Chiriqui, Panama.

TYPE MATERIAL.—The female holotype was taken in the vicinity of the type locality on 31-V-1972, 6000–8000 ft, by T. L. and L. J. Erwin.

The holotype is in the Canadian National Collection.